



M.O.E. Policy Manual

POLICY TITLE TREATMENT REQUIREMENTS FOR MUNICIPAL AND COMMUNAL WATER WORKS USING SURFACE WATER SOURCES	NO. 15-14-01
<u>Legislative Authority</u> the Ontario Water Resources Act (R.S.O. 1980) Section 7 (1)(d), Section 23 and Section 44	
<u>Statement of Principles</u> This policy describes the treatment that the Ministry will require at municipal and communal water works using surface sources for raw water supplies. It provides technical guidance to Municipalities and Ministry of Environment staff on the production of potable water from these sources. This policy is written in support of Policy 15-D6 of the <u>Manual of Environmental Policies and Guidelines</u> which deals with <u>Drinking Water Quality in Ontario</u> . The Policy applies to water works operated by municipalities and others as covered under the provisions of Section 23 of the OWR Act. The main function of these works is to treat raw water from surface sources to produce potable water. Water transmitted with or without treatment to uncovered storage reservoirs shall be deemed to be surface water, and shall be subject to the requirements of this policy. All Guidelines referred to in this policy are available from Water Resources Branch or Regional Offices.	
<u>Point of Contact</u> Drinking Water Section, Water Resources Branch	
<u>Effective Date</u> December 31, 1987	

RATIONALE

Water for drinking, culinary, and other domestic uses should be safe, palatable and aesthetically appealing. It should be free from pathogenic organisms, and hazardous levels of chemical and radioactive substances. Other aspects, such as corrosivity, tendency to form incrustations, and excessive soap consumption due to hardness should be controlled on the basis of economic considerations as they can interfere with the intended domestic use of the water.

Aesthetic considerations, such as colour, taste, odour, and turbidity, are factors which determine the quality of water and may also have an indirect health effect. Turbidity may interfere with the ability of a disinfectant to render pathogens harmless and may also transport associated trace contaminants; it is a significant health factor at values much lower than those where turbidity becomes an aesthetic consideration. By itself, filtration of surface raw water will rarely achieve suitably low turbidities.

Surface raw waters in Ontario generally do not meet the prescribed drinking water quality. They either continuously or seasonally exhibit turbidity in excess of the 1 FTU requirement, as well as exceeding other limits.

In order to achieve the intent, quality and characteristics set out in the "Ontario Drinking Water Objectives - April, 1983 Edition", certain treatment processes must be provided depending on the quality of raw water source.

To reduce turbidity and provide basic public health protection, the treatment for surface waters will consist of chemically-assisted coagulation-flocculation filtration and disinfection.

1. Policy Objective

The objective of this policy is to protect the health of the public by ensuring that the quality of potable water produced from these works conforms to the intent and limits set out in the Ministry of the Environment's "Ontario Drinking Water Objectives - April 1983 Edition".

2. Ministry Requirements of Municipal and Communal Water Works

All water works shall have acceptable raw water supply, source protection and treatment processes to ensure that the potable water produced shall meet the intent and the limits set out in the "Ontario Drinking Water Objectives".

3. Acceptability of Raw Water Supply

A sampling program with adequate analyses should be carried out to establish the acceptability of the source supply and the raw water quality variations.

These analyses will accompany the application for Certificate of Approval for water works. The sampling program must be under the direction of Regional staff. The parameters to be analyzed should be broadly based on the "Ontario Drinking Water Objectives"; analysis for additional parameters may be required at the discretion of Regional staff, based on the local potential for contamination, or where there exists a known discharge or other situation likely to contribute contaminants. Analyses should be completed by such methods, and under such conditions as recommended by the Regional staff, after consultation with other Branches of the Ministry of the Environment when needed. Results of the analyses will be made available to the public upon request.

Responsibility for the sampling program rests with the proponent. The Ministry, at its discretion, may assist in carrying out the sampling program.

4. Level of Treatment

All water works in the Province of Ontario which utilize surface waters, i.e., lakes, rivers, streams, etc., as a source of raw water shall use treatment processes consisting of coagulation-flocculation (by means of the application of approved chemical coagulants), filtration and disinfection except as provided in section 4.1 and in the Ministry's Guidelines listed below.

Other treatment processes capable of producing potable water of equivalent or better quality will also be considered as acceptable alternatives.

4.1 Variance from Treatment Requirements

Where it is considered that proper source protection exists and the source quality is such as to warrant a variance from the treatment requirements, exemptions may be recommended on a case-by-case basis and in accordance with the Ministry's Guidelines listed below:

Guidelines For Granting a Variance from the
Treatment Requirements For Municipal and
Communal Water Works Using Surface Water
Sources

No surface water supplies can be provided for domestic consumption without effective disinfection.

4.2 Higher Treatment

Higher levels of treatment may be needed to ensure that the potable water shall meet the intent and the limits set out in the "Ontario Drinking Water Objectives". Higher levels of treatment shall be justified by more intensive and appropriate site-specific sampling and analysis of raw water supply sources.

5. Review of Treatment
Requirements

The level of treatment required for individual water works shall be subject to periodic review by MOE Regional Offices as necessary, especially when expansions of water works are contemplated.

More stringent treatment requirements may be needed as justified by site specific sampling and analysis of raw water supply and treated water.

6. Drinking Water Objectives
Compliance Assessment and
Enforcement

A comprehensive monitoring program, including regular sampling of treated water and recording of flows, will be undertaken by the works operating authority. This will permit assessment of compliance with the "Ontario Drinking Water Objectives" and, if necessary, initiation of appropriate remedial measures for works out of compliance.

The monitoring program requirements along with appropriate follow-up procedures for responding to adverse water quality analysis results, are described in the "Ontario Drinking Water Objectives - April, 1983 Edition". The Ministry, at its discretion, may assist in carrying out the monitoring program.

7. Variance from Policies
and Guidelines

The concurrence of the Regional Director, and the Director of Water Resources Branch must be received before any variance from the policies listed in Sections 1.0-5.0 above and their related Guidelines is granted.

8. Additional References

The following Ministry publications will serve as reference documents pertaining to technical details of treatment processes and requirements.

- (a) "Guidelines for the Design of Water Treatment Works", April, 1982.
- (b) "Chlorination of Potable Water Supplies" Bulletin 65-W-4, March, 1980.

For details on the application for approval of water works, consult: "A Guide on Applying for the Approval of Water Works", January, 1978.